

**THE LIGHT INFANTRY DIVISION:
CREDIBLE FORCE FOR FORCE XXI OR
JUST A BUNCH OF HOOAH?**

**A MONOGRAPH
BY
Major Michael W. Miller
Infantry**

**School of Advanced Military Studies
United States Army Command and General Staff
College
Fort Leavenworth, Kansas**

First Term AY 98-99

Approved for Public Release Distribution is Unlimited

DTIC QUALITY INSPECTED 2

19990804 076

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE	3. REPORT TYPE AND DATES COVERED MONOGRAPH	
4. TITLE AND SUBTITLE <i>The Light Infantry Division: Credible force for Force XXI or just a bunch of hoohah?</i>			5. FUNDING NUMBERS	
6. AUTHOR(S) <i>MAJ Michael W. Miller</i>				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies Command and General Staff College Fort Leavenworth, Kansas 66027			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Command and General Staff College Fort Leavenworth, Kansas 66027			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE DISTRIBUTION UNLIMITED.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) <i>See attached</i>				
14. SUBJECT TERMS			15. NUMBER OF PAGES <i>57</i>	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UNLIMITED	

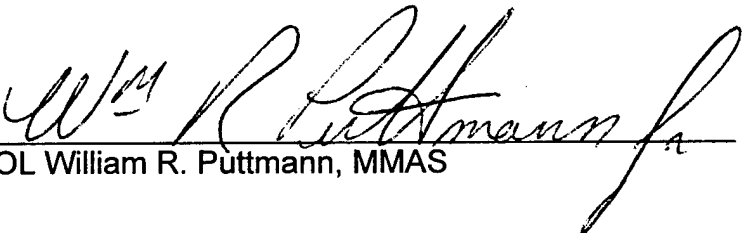
SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

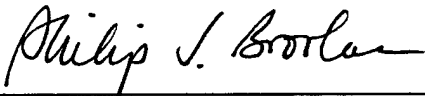
Major Michael W. Miller

Title of Monograph: *The Light Infantry Division: Credible Force for Force XXI or
Just a Bunch of Hooah?*

Approved by:


COL William R. Puttmann, MMAS Monograph Director


LTC Robin P. Swan, MMAS Director, School of Advanced
Military Studies


Philip J. Brookes, Ph.D. Director, Graduate Degree
Program

Accepted this 16th Day of December 1998

TABLE OF CONTENTS

	Page
I. Introduction.....	1
II. FORCE XXI.....	5
FORCE XXI Characteristics.....	5
FORCE XXI Battle Dynamics.....	11
III. The Light Division.....	17
Founding Guidance.....	17
The H-Series Infantry Division.....	19
The Current Light Division.....	21
Light Infantry Division Historical Performance.....	23
Equipment changes for light units.....	28
IV. Analysis.....	31
V. Conclusion.....	40

ABSTRACT

THE LIGHT INFANTRY DIVISION: CREDIBLE FORCE FOR FORCE XXI OR JUST A BUNCH OF HOOAH? By MAJ Michael W. Miller, USA, 56 pages.

The purpose of this monograph is to examine the characteristics of Force XXI operations and the capabilities of Light Infantry Divisions. The question to be answered is: Can the Light Infantry Division conduct offensive operations to the tempo required by Force XXI operations? The monograph focuses on answering three basic questions:

- What are the tempo requirements for Force XXI operations?
- What are the capabilities and limitations of the current Light Infantry Divisions?
- How well does the Light Infantry Division meet the tempo requirements of Force XXI doctrine?

The environment is examined to determine why the Army is making changes under the Force XXI process and if the Light Infantry divisions should be part of this change.

Force XXI characteristics and Force XXI battle dynamics are examined to determine the importance of tempo in Force XXI operations. The dynamic of controlling battle space through the use of tempo emerges from this examination.

The current light infantry division's structure, capabilities, and systems are examined to determine at what tempo the light infantry division can operate. Historical studies of light infantry division operations are examined to determine how light divisions have performed in past operations. Finally, the equipment changes that are planned or ongoing for light infantry divisions are examined to determine if these changes can provide the tempo required by Force XXI doctrine.

Finally, the light infantry division's ability to operate at the tempo required of Force XXI units is examined. It is the author's conclusion that the light infantry division can not conduct offensive operations to the tempo required by Force XXI and that ground transportation assets are required to bring the mobility of Light Division up to Force XXI standards.

Chapter 1

INTRODUCTION

Armies exist to defend the interests of their nations. In 1998, the United States has interests through out the world. The world environment today presents the U.S. Army with many challenges.

The world today is changing at an exceptionally rapid pace. Many factors have influenced this rapid rate of change, but the collapse of the former Soviet Union is one of the most important factors affecting change in the military.

The loss of the Soviet Union as the U.S. ever present monolithic threat resulted in Congress drastically reducing the defense budget, and subsequently the Army's force structure. The National Military Strategy (NMS) still requires the Army (in conjunction with the other services) to have "the capability to fight two major theater Wars initiated in rapid succession."¹ Fighting major theater wars (MTW) are not the only missions envisioned for the military by the NMS. The NMS also states that the Armed Forces will be involved in operations other than war (OOTW) when it specifies that US Armed Forces will be involved in promoting stability, preventing or reducing conflicts, and responding to the full spectrum of crises.²

The NMS clearly identifies that, when given the budget realities of today, a different type force is required to meet the wide range of missions possible today. The NMS calls for forces that are capable of operating across the full spectrum of combat. In addressing the capabilities required by Joint Forces, the NMS calls for forces that can "respond across the full spectrum of crises, from major combat to humanitarian assistance operations."³ The NMS requires that the forces

employed be decisive and in a Major Theater War (MTW) they must be able to gain the initiative quickly. When addressing required capabilities, the NMS states "In situations such as an MTW, the Armed Forces must be able to gain the initiative quickly. Our forces must have the capability to halt an enemy; immediately initiate operations that further reduce his capability to fight; and mount decisive operations to ensure we defeat him and accomplish our objectives."⁴ This guidance from the NMS clearly indicates that all army forces, to include its light divisions, will have to be able to operate across the full spectrum of conflict. The nation can no longer afford to maintain an "army of armies" in which certain army forces only operate in one small segment of the spectrum of conflict.⁵

The unpredictability of some regions around the globe is the result of the disintegration of the Soviet Union. When the world was divided into two distinct spheres of influence the actions of most nations could easily be predicted. The two super powers exerted control and direction on their allies and client states.. Now, the bipolar world is gone, only one superpower remains, the United States. The world in 1998 is faced with national, cultural, ethnic, religious and regional conflicts which are complicating inter and intra- national relations.

Globalization of the world economy has provided increased wealth to many regional powers. This increased wealth provides these regional powers the ability to purchase improved equipment, technology, weapons, and information.⁶ This ability to acquire improved munitions and weapon systems has added a new dimension to the conflict on many potential third world battlefields. In many

regions the "backwater battlefields in the developing world have become high-risk, increasingly lethal environments."⁷

The armies of the world can be divided into three categories. The first, Infantry-Based Armies, are those armies of much of the less-developed world. They have some armor but are reliant on dismounted infantry for the bulk of their combat power. They resemble the armies of WWI but with more lethal weaponry. The second type is Armor-Mechanized-Based Armies. The armies of most industrial nations fall into this category. These armies typically mount at least forty percent of their forces in armored vehicles. These armies use quantity and weight of metal to compensate for a lack of technological sophistication. The final category is Complex, Adaptive Armies. These forces come from developed nations. These technically and tactically advanced armies are smaller but exceedingly expensive to equip, train, and maintain. They possess greater flexibility to seize opportunities on the battlefield as well to adapt to dynamic situations across the continuum of war and OOTW.⁸ Most nations around the world are attempting to improve specific aspects of their military no matter what category they fall in. These limited improvements can have a profound impact because "by purchasing even small numbers of precision guided munitions (PGM), sophisticated sensors, and stealth technologies, regional adversaries obtain military capabilities completely out of proportion to the size of their economy or sophistication of their military in general."⁹

Another major area of change has been the rapid improvement and expansion of information technology. Rapid advances in microprocessing technology

continue to change the way we collect, communicate, and use information. These new systems allow large quantities of information to be both communicated and shared quickly. This capability has provided two applications that have military significance. The first is that of enhanced battlefield situational awareness. This is the ability for the commander to see the enemy and friendly situation more accurately and quickly than his opponent. Armed with this knowledge the commander can achieve battlefield efficiencies that allow him to act and apply combat power much faster than the enemy commander. The other significant military ability that information technology provides is the ability for both friendly and enemy forces to quickly influence the communications media, which impacts on national will.¹⁰

The aim of this paper is to answer the question: Can the light Infantry Division conduct offensive operations to the tempo required by Force XXI operations. First, the key components of Force XXI "doctrine" are examined to establish what the tempo requirements for forces operating under Force XXI are. The characteristics and battle dynamics of Force XXI will be analyzed for this purpose. Second, the Light Infantry Division's doctrine, structure, capabilities, and systems will be examined to determine if it possess the tempo required for Force XXI units. Finally, the ability of light divisions to operate at the tempo required by Force XXI will be analyzed using the criteria of battlespace control, simultaneous attack, speed, mass, maneuver, firepower, and protection. After this analysis a conclusion will be drawn and recommendations made that will address deficiencies in the Light Division structure.

Chapter 2

FORCE XXI

FORCE XXI CHARACTERISTICS

The objective of the Force XXI initiative is to move the Army into the 21st Century capable of accomplishing the missions specified in the NMS within the budget constraints laid down by Congress. Force XXI is designed to ensure that the U.S. Army is a complex, adaptive army that can defeat larger Infantry based armies and larger Armor-Mechanized armies.

Force structure redesign and the acquisition of new equipment are not the only components of the Force XXI initiative. Equally important are the changes being made to the Army's doctrine that describe the concepts of how the newly redesigned and re-equipped units will fight. As Gen. Hartzog succinctly puts it: "Force XXI is more than just a redesigned division".¹¹ This chapter examines the concepts behind how Force XXI units are designed to fight.

While some Force XXI operations are similar to what armies have been trying to do for ages, Force XXI does exhibit some unique characteristics. Some of these are modifications of previously held concepts while some are new and unique ideas. The characteristics of Force XXI operations are multi-dimensional, precise, non-linear, distributed operations, simultaneity, integration, and patterns of operations.¹²

Force XXI operations are designed to be multi-dimensional. This characteristic is grounded in the concept of battlespace. Battlespace is traditionally defined as "the conceptual physical volume in which the commander

seeks to dominate the enemy. It expands and contracts in relation to the commanders ability to acquire and engage the enemy.”¹³ Force XXI is designed to operate in an expanded battlespace, which goes beyond the traditional physical dimensions of width, depth, and height. It also includes portions of the electro-magnetic spectrum and extends beyond the physical boundaries of Force XXI units through their communications and digital connectivity to other army, joint, and coalition elements.¹⁴

Precision, another characteristic of Force XXI operations is best described by accuracy. Force XXI operations will be characterized by synchronized attacks throughout the battlespace on units and targets which have been subjected to earlier, condition setting attacks, to enhance their vulnerability. Such synchronized and decisive operations require great precision. Precision in decisive operations is enabled by three developing capabilities. The first is digitization, providing soldiers and leaders at all echelons the information required for making informed decisions. Second, a complete suite of strategic, operational, and tactical sensors, linked to analytical teams that will fuse combat information into situational awareness across the battlespace with greater clarity than ever before. Finally, simulations allow operations to be planned and rehearsed based on visualized METT-T conditions. Precision is important to every aspect of Force XXI operations .¹⁵ Precision is an essential capability with reduced force structure because the assets that remain must be used in an economical manner.

Distributed operations also characterize Force XXI operations. Employment of emerging forces and capabilities will be executed throughout the depth, width, and height of our battlespace. These operations are distributed. Distributed operations are executed where and when required to achieve decisive effects instead of concentrated at a possibly decisive point. Distribution provides protection by allowing dispersment on a more lethal battlefield. Distribution also enhances agility by allowing greater flexibility to react to multiple changes in the situation.¹⁶

Force XXI operations are characterized by non-linearity, executing tasks across the entire battlespace rather than massing combat power at the Forward Line of Troops (FLOT). Non-linear operations do not rigidly organize the battlespace into close, deep, and rear operations. Instead the battlespace is fluid, it changes as METT-T changes through-out the duration of the mission. Non-linearity requires soldiers and leaders to possess greater situational awareness, allowing risk to be accepted with gaps between units instead of more traditional contiguous operations.¹⁷

Within the context of Force XXI operations simultaneity plays an important role. Simultaneous operations seize the initiative and present the enemy with multiple crises and no effective response. Digitization enhances the ability to plan, coordinate, and execute actions simultaneously. Each of these actions creates an effect, the sum of which is greater than if they were discrete and sequential. Rather than a single concentrated attack, a series of attacks are executed as near-simultaneously as possible. For distributed operations to have

a decisive effect, they must be conducted at a tempo and sequence that the enemy cannot endure. Upon indication of collapse, highly mobile forces exploit success by fires and maneuver to gain control and dominate the contested battlespace.¹⁸

Integration of Force XXI operations, simply means that Force XXI operations must be fully integrated with joint, multi-national, and non-governmental partners. Integrated operations allow the U.S. Army to leverage the full suite of capabilities that all the services bring to the battlespace.¹⁹

The final characteristic of Force XXI operations is Patterns of Operations, this means that Force XXI operations can be executed in a deliberate pattern of operations. These patterns are not necessarily phases nor are they required to be sequential, they are used to focus the many tasks required of the force. The patterns of operations are: project the force, protect the force, gain information dominance, shape the battle space, decisive operations, and sustain the force.²⁰

Force XXI is designed as a component of a power projection army. Projecting the force is more than just the traditional deployment with its deploy, stage, and move to combat paradigm. Force XXI is designed to be modular which enables rapid and effective tailoring of the force. Force XXI units can conduct mission planning and rehearsals using automated systems and simulations. These units will make use of army prepositioned afloat equipment to provide operational agility and rapid reaction in crisis situations. Forced entry forces (Airborne, Air Assault, SOF) may deploy straight into combat operations in order to leverage simultaneous and distributed operations and dictate the tempo and manner of the

fight. Enroute battle command allows adjustment of plans and execution during deployment. Streamlined logistics , characterized by total asset visibility will support early operations upon arrival in theater.²¹

Protecting the force is an ever present requirement. The capabilities inherent in Force XXI allow it to be done more efficiently. Common situational awareness allows early and accurate Intelligence Preparation of the Battlefield (IPB). IPB facilitates employment of security forces by signaling where a threat will appear, this keys the requirement for active security measures. Situational awareness also facilitates greater dispersion, which makes enemy targeting more difficult. Deception inhibits enemy prediction of friendly actions, which promotes decisive operations and also protects the force. Another means of protecting the force is preemptive attack. Improved sensors, shooters and linkages enable the defeat of enemy attacks even before they occur.²²

Gaining information dominance "means creating a disparity between what we know about our battlespace and operations within it and what the enemy knows."²³ Army information operations (IO) are conducted within the context of joint IO, including PSYOPS and deception campaigns, as well as regular media operations. Successful IO results not only in eliminating enemy information capabilities, but also assists in providing greater clarity to battle command through improved situational awareness.²⁴

Shaping the Battlespace is essential to setting the conditions for friendly success in decisive operations. Shaping the battlespace is more than traditional preparatory fires and deep battle. Rather, Force XXI forces set conditions in

terms not only of what they do to the enemy, but also how they posture the friendly forces and maximize the take advantages of terrain, weather, and infrastructure. "The overall goal is to eliminate the enemy's capability to fight in a coherent manner before committing forces to decisive operations."²⁵ Shaping the battlespace starts with early, continuous, precise IPB. This facilitates joint and army fires, even during early entry operations. IPB supports identification of the enemy main effort and other key assets. Fires strike to eliminate enemy critical capabilities while sensors locate and track the enemy main effort. Force XXI forces can not count on automatically shaping the battlespace as desired. Force XXI units must seek to create windows of advantage by setting conditions for decisive operations, evaluating the results, and then setting the conditions for another decisive action. These "windows of opportunity" must be planned, coordinated, and established in time and space for success.²⁶

According to Training and Doctrine Command's (TRADOC) Land Combat in the 21st Century, decisive operations are those military operations that force the enemy to submit to our will.²⁷ Decisive operations require the precise integration and application of combat power and combat multipliers throughout the enemy's formation. These operations are conducted in depth and across all dimensions to rapidly destroy the enemy. Concurrently, by striking the enemy at multiple critical points in a sequence which appears to the enemy as a simultaneous action, will overload his ability to react. Overmatching situational awareness, as a product of digitization, yields more precise, effective, and efficient maneuver and fires. This awareness allows army elements to mass effects without the risk of massing

forces. Information dominance enhances tactical surprise, which allows Force XXI units to fight when and where they choose. The final result of decisive operations is the destruction of the enemy's means and will to fight.²⁸

Sustaining the force is an ongoing effort throughout the entire pattern of operations. Force XXI operations must not only seize the initiative and dictate the tempo, they must also maintain that tempo over time. Sustainment is crucial to maintaining the required tempo. The pace of logistical operations must be increased to match that of maneuver in order to dominate tempo. The key to this is anticipatory logistics with total asset visibility provided by digitization. Specifically, the palletized load system and improved cargo handling technologies significantly speed the pace at which we can execute service support.²⁹

FORCE XXI BATTLE DYNAMICS

The emerging Force XXI "doctrine" known as battle dynamics provides the framework and understanding of Force XXI. Battle dynamics are operational manifestations of the Force XXI characteristics. The battle dynamics of Force XXI are battle command, battlespace, depth and simultaneous attack, early entry, and combat service support.³⁰ While all of these battle dynamics are important to Force XXI, the early entry dynamic is outside the scope of this paper and combat service support was addressed under Force XXI characteristics.

Battle command is the art of battle decision making and leading. It includes controlling operations and motivating soldiers and their organizations into action to accomplish missions. Battle command includes visualizing the current situation and a future state, then formulating concepts of operations to get from one to the

other. It also includes assigning missions, prioritizing and allocating resources, selecting the critical time and place to act, and knowing when to make adjustments during the fight.³¹ The Army's vision of Force XXI battle command is reflected in the Army Battle Command System (ABCS).³²

ABCS uses information age technology to display real time friendly and enemy situations in a digitized image that can be displayed graphically in both mobile and heads-up displays. "This system permits commanders at every level to share a common relevant picture of the battlefield scaled to their level of interest and tailored to their special needs."³³ This common picture will greatly enhance Force XXI dominance by enhancing situational awareness and ensuring rapid, clear communication of orders and intent, thereby reducing the confusion, fog, and friction of battle.

Advanced Army and joint intelligence systems that feed into ABCS will enable commanders to detect and track enemy forces throughout a given battlespace. Friendly force situational awareness will be brought about by the digitization of each weapons platform and individual soldiers so that commanders know where every fighting system is located on the battlefield. This enhanced situational awareness will build confidence and agility into the maneuver of both mounted and dismounted elements.³⁴

Battlespace is closely related to the components of battle command. Force XXI units will be able to dominate an expanded battlespace by possessing the ability to be more lethal and survivable while operating at a tempo greater than any enemy.

Battlespace involves the ability to visualize the area of operations and the way that all forces interact. In the physical sense battle space is that volume determined by the maximum capabilities of a unit to acquire and engage the enemy. Future technology will greatly enhance the capability to target enemy units by being able to see the actual locations of both friendly and enemy forces. Force XXI forces, operating at an operational tempo controlled by the commander within his battlespace, will use an expanded array of weapon systems to engage enemy forces at greater distances and with increased accuracy. Based on enhanced situational awareness through ABCS, the operating tempo of these forces must be such that they will be able to outpace any adversary in both mounted and dismounted warfighting environments.³⁵

This expanded battlespace will also permit simultaneous engagement by a variety of joint warfighting systems available to the future task force commander. Battlespace expansion will achieve several advantages over the enemy. First through a variety of reconnaissance systems the enemy will be identified, disrupted, or destroyed before they can effectively engage friendly forces. Second, friendly force vulnerabilities are reduced through increased dispersion. This dispersion will provide friendly forces the protection inherent with dispersion, but allow friendly forces to mass when required. This ensures that force massing can be done rapidly and in varying combinations of combat, combat support, and combat service support. Finally, battlespace expansion will allow friendly forces to conduct maneuver by use of both fires and rapid physical mass or dispersion of ground forces to sense and dominate a greater battlespace. These advantages

will allow army units too achieve a maneuver force overmatch. This overmatch will allow the Force XXI organization to achieve battlespace domination when coupled with high tempo all weather, air-land continuous operations.³⁶

Domination of the extended battlespace is inherent with Force XXI operations but requires deep and simultaneous attack capabilities. Depth and simultaneous attack enable the commander to directly influence the enemy through-out the width, height, and depth of his battlespace to rapidly defeat an enemy. Although these attacks may not achieve a simultaneity in application, they must appear seamless and nearly simultaneous in effect. Depth and simultaneous attack can be conducted by a wide variety of assets. These will include air, army aviation, ground maneuver units, precision fires, psychological operations, information operations, and special operations forces. Successful depth and simultaneous attack operations will place increased demands on intelligence systems. The intelligence systems sensors will have to be capable of sensing, locating, and identifying targets and after attack, assessing the damage.³⁷

An important concept that underlies all of Force XXI doctrine is tempo. Reduced force structure has resulted in greater emphasis being placed on tempo during Force XXI development. The Army is required to get more combat effectiveness out of every unit that exists under Force XXI. By emphasizing tempo, the Army expects that the fewer and smaller units that exist under Force XXI will be engaged at a faster pace and this increased pace will help negate the loss of force structure.

The idea of using tempo to attain advantage in offensive operations is not new. The 1993 version of FM 100-5 identified it as a characteristic of the offense and defined it as "the rate of military action: controlling or altering that rate is a necessary means to initiative; all military operations alternate between action and pauses as opposing forces battle one another and fight friction to mount and execute operations at the time and place of their choosing."³⁸ FM 100-5 further states: "Commanders seek a tempo that maintains relentless pressure on the enemy to prevent him from recovering from the shock and effects of the attack."³⁹ In Chapter 7, FM 100-5 refines the definition of Tempo as a "combination of speed and mass that creates pressure on the enemy".⁴⁰ Tempo exists as a factor at all levels of war.

Upcoming doctrine clearly recognizes that tempo is required for decisive operations. The 1998 Draft version of FM 100-5 states that "Decisive operations require that Army forces operate at higher tempos than their opponents. Speed promotes surprise and can compensate for lack of mass."⁴¹ Later FM 100-5 emphasizes the importance of tempo against a quality opponent when it states "Although a first class opponent with high morale and good leadership can maintain cohesion if destruction occurs gradually through attrition, his force may collapse from sudden, accelerating catastrophic losses and relentless pressure thereafter."⁴²

Increased tempo is derived from exploiting the initiative. The 1998 Draft version of FM 100-5 also states: "To win, the commander must seize, retain, and exploit the initiative by; maneuvering more rapidly than the enemy to gain

positional advantage over the enemy, employing firepower to facilitate and exploit positional advantage, and being able to persist and exploit, assuring the sustainment of friendly forces before, during, and after the engagement with the enemy.”⁴³

The improved information technologies embodied in Force XXI equipment like the ABCS and UAVs provide the information needed to exploit tempo by providing improved situational awareness. Better intelligence, shared among all elements through ABCS, allow commanders to control and vary tempo based on their superior knowledge of the friendly situation and with improved logistics asset visibility greatly enhances Force XXI units.⁴⁴

Force XXI, with it's associated organizational and doctrinal change is designed to allow the Army to counter the threats of the near future. The U.S. Army light divisions, play a major role in Army force structure, and should be compatible with Force XXI organizations. A review of the light division, it's current capabilities, new equipment fieldings and structural changes need to be examined.

Chapter 3

THE LIGHT DIVISION

FOUNDING GUIDANCE

In 1984 the Army began the process of building four light divisions in the active army. The 7th and 25th Infantry Divisions were converted from regular Infantry Divisions to light Infantry Divisions and the 6th and 10th infantry divisions (light) were created.

In the early 1980's Department of Defense (DOD) and Congressional leaders recognized that the probability of conflict in areas outside western Europe and the Korean peninsula was increasing. This concern influenced lawmakers to favor service programs that emphasized contingency operations and these programs received increased funding levels. To address the concern over contingency operations, two consecutive Chiefs of Staff of the Army (CSA), General Meyer and General Wickham, directed that the Army develop a proposed light infantry division force structure. The end result of this process was an approved light infantry division structure of 10,000+ men.⁴⁵

General Wickham provided the guidance for the light infantry division structure that was finally adopted. General Wickham's guidance was influenced by the lack of strategic mobility. This concern was a major reason for developing the Army Of Excellence (AOE) light divisions, which contained the constraint that the new light division had to be capable of moving on 500 C-141 sorties.⁴⁶

Strategic mobility is "the capability to deploy and sustain military forces

worldwide in support of national strategy.⁴⁷ The ability to move on 500 C-141 sorties was viewed as providing the light divisions with improved strategic mobility. Among the changes needed to give the light divisions the improved strategic mobility was: a significant reduction in the number of ground vehicles, reducing the caliber and number of artillery systems, number of anti-tank systems, and reducing the division's support command⁴⁸.

General Wickham's vision of the new light division was expressed in his 1984 White Paper:

This 10,000+ man force will have greater tooth-to-tail ratio than any of our other Army divisions and will be deployable worldwide three times faster than existing infantry divisions. It will be an offensively oriented, highly responsive division organized for a wide range of missions worldwide, particularly where close fighting terrain exists.⁴⁹

The light infantry divisions were designed to be capable of operating across the broad spectrum of conflict, but focused toward low intensity conflict. They were also to be designed to maximize their combat power through the use of terrain, particularly close and urban terrain.⁵⁰

While these divisions were to focus training on low intensity conflict, they had to be capable of operating in mid and high intensity conflict. As a result of their reduced size and structure, these new divisions were designed to "be capable of rapidly reinforcing forward deployed US Forces in NATO or the Far East."⁵¹ Strategic mobility was also supposed to give the light divisions the ability "to arrive in a crisis area before a conflict begins."⁵² By arriving in a potential crisis spot early the light division demonstrated U.S. resolve and acted as a

deterrent. For this deterrent to be effective and credible it was recognized that the "light infantry divisions must be able to fight—anytime, anywhere, and against any opponent."⁵³

The light divisions were not intended to operate in mid and high intensity conflicts without augmentation. "In mid to high intensity scenarios such as Southwest Asia or NATO, light infantry forces may be augmented with tailored Corps units to strengthen their combat power and sustainability."⁵⁴ The guidance provided to determine the combat support (CS) and combat service support (CSS) structure for the new divisions was restrictive. Only those assets that would be needed every day, across the full spectrum of conflict, and in all types of terrain were included in the light divisions structure. Those CS and CSS assets that didn't meet that criteria were placed in the division's parent Corps headquarters.⁵⁵ This guidance resulted in a very austere structure that required augmentation in almost all situations. This augmentation, required of the new light divisions, differed drastically from the H-series infantry division it replaced.

THE H-SERIES INFANTRY DIVISION

In 1984, the U.S. Army had three infantry divisions organized under the H-series table of organization and equipment (TOE). These were the 7th Infantry Division at Fort Ord, the 25th Infantry Division in Hawaii, and the 2d Infantry Division in Korea.⁵⁶ The H-series TOE these divisions were structured under is depicted below:

[illegible]

These battalions were designed primarily to fight and move on foot.

20

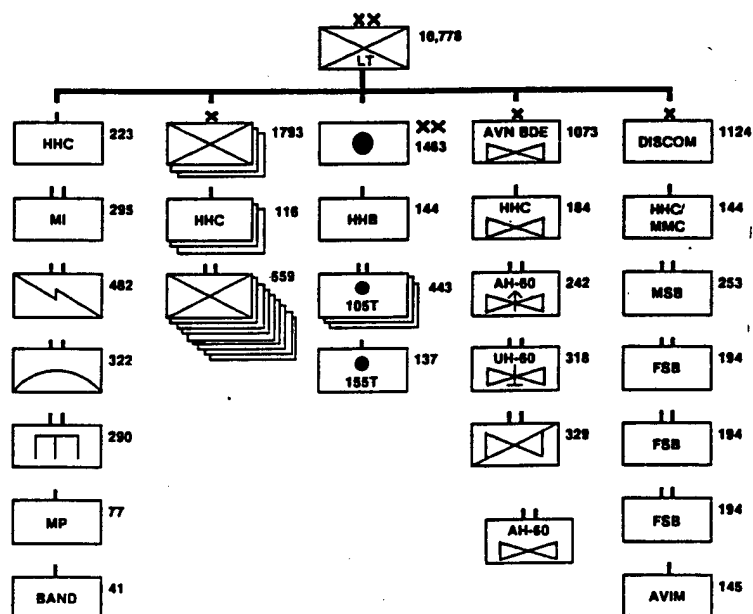
CSS "plugs" they received already existed in the H-series infantry divisions. After augmentation, the light division looked very much like the H-series infantry divisions, except they lacked the increased combat advantage that accrues to units that have trained together.

THE CURRENT LIGHT DIVISION

The current light infantry division is structured like the unit envisioned in General Wickham's 1984 White Paper. The light infantry divisions mission statement is:

"to close with and destroy the enemy as well as to control land areas, including population and resources. These divisions make optimum use of offensive, decentralized, irregular-type operations by highly trained small units. Infantry divisions are austere and capable of conducting independent operations for only 48 hours. They are expert in urban warfare, jungle warfare, and infiltration operations and can kill enemy armored vehicles on any battlefield."⁵⁸

To accomplish this mission the light division has the following structure:



This force structure is very austere because it lacks both organic mobility and firepower. The organization chart may not fully highlight how austere it's structure

really is. The infantry companies are entirely foot mobile and have no organic vehicles. The infantry battalion has only slightly better mobility. It has thirty-five HMMWVs, but their primary missions are not for moving troops. The dispositions of the battalions HMMWV's are two dedicated to BN HQ, six to the anti-tank platoon, six to the medical platoon, eight to the mortar platoon, one to the communications platoon, and twelve to the support platoon. The twelve HMMWVs in the support platoon are primarily dedicated to moving equipment, supplies, and ammunition.⁵⁹ If required, these vehicles can be used to move troops, but this is at the expense of moving required supplies. Each HMMWV can carry a maximum of nine soldiers, for a total of 108; this is less than the strength of one rifle company.

The infantry brigade has some organic transportation assets, but it has the same predicament that the battalion support platoons have. The brigade has ten 5-ton trucks but these are also dedicated to moving supplies, equipment, and ammunition. If required to move troops, each 5-ton truck can carry twenty-four troops for a total hauling capacity of 240 troops, this is less than two companies out of the brigade.⁶⁰

The situation is similar at division level. The division support command (DISCOM) has the capability to move one infantry battalion with its transportation motor transport company when it is not required to move supplies, its normal mission.⁶¹ The light division also has a limited transportation capability with its assault aviation battalion. This battalion has two lift companies with a total of thirty UH-60 blackhawks. Each UH-60 is capable of carrying approximately

twenty soldiers under war time conditions, which means this battalion has a total haul capacity of 600 soldiers, this is approximately one infantry battalion per lift.⁶² More than one battalion a day could be moved if the aviation battalion can make multiple lifts. Multiple lifts would depend on a variety of factors, including the distance to the landing zone and crew rest.

The light division can only move one infantry battalion faster than four kilometers an hour by using it's assault aviation battalion. All other vehicular assets are required for logistics resupply, a capability that is already austere in the light divisions. The lack of mobility that can be provided by ground or air vehicles limits the pace of movement to an objective, repositioning, or exploitation to four kilometers an hour.⁶³ The total distance covered by these foot mobile infantrymen in one day is also limited by the lack of vehicle support to a total of approximately twenty to thirty kilometers for all operations conducted in a day.⁶⁴

These movement capabilities are based on using organic divisional assets. The 1984 White Paper envisioned that the corps would provide needed aviation and/or wheeled vehicle assets to improve the mobility of the light division. However, these assets are intended to support all of the units in the corps. Augmentation is normally provided on a mission by mission basis, not by permanent attachment. Corps level assets can not normally establish habitual support relationships and difficulties occur because they are not accustomed to training and working with the light division.

LIGHT INFANTRY DIVISION HISTORICAL PERFORMANCE

The creation of the light divisions in the mid-eighties was not the first experience the U.S. Army had with light infantry divisions. In 1942 the Army had concerns over the availability of strategic transportation assets and began looking at the possibility of creating light infantry divisions to ease this problem.⁶⁵ These divisions were to have an established strength of approximately 10,000, require minimal logistical support, have the capability for augmentation, and be rapidly deployable.⁶⁶ In 1943, the creation of three light divisions was authorized. The 71st and 89th Light Divisions were activated and underwent extensive evaluation for eight months.⁶⁷ The results were not positive. The divisions reported that they did not have sufficient communications equipment, vehicular transportation, or reconnaissance elements and that the engineer battalion was inadequate.⁶⁸ During exercises it was discovered that the divisions could not support themselves in rough or difficult terrain and were incapable of sustaining offensive operations.⁶⁹ These findings caused the senior evaluator, MG J. Milliken, to state: "...the light division, both motor and pack, are not properly organized and equipped ...(and) should be returned to a standard division."⁷⁰ Based on the results of this evaluation the 71st and 89th divisions were reorganized into regular infantry divisions before being deployed into combat. The 10th(mountain) division had its end strength increased to 14,000 men and had 6,000 mules added to its structure before it deployed to fight in Italy.⁷¹

Since the Light Divisions were created in 1985 they have been used in both combat operations and operations other than war. In 1989, the 7th Infantry Division(Light) participated in Operation Just Cause. In Just Cause, elements of

the 7th ID were initially deployed to Panama in an effort to demonstrate U.S. resolve and deter aggression. When deterrence failed, the 7th ID attacked other light infantry forces in urban and jungle environments. This was the near textbook situation envisioned for the use of light divisions. The remainder of the division deployed from Fort Ord but was forced to deploy in a very constrained strategic air flow. This constrained airflow allowed for only ten vehicles per battalion (BN) to be deployed, this is twenty-five less than the units are authorized.⁷² However, the 7th Infantry Division (ID) was able to successfully accomplish all its assigned missions. This was despite the inherent air lift restrictions and lack of ground vehicle transportation. Two factors that were unique to Operation Just Cause facilitated this. The first factor was that the elements of the 7th ID already in Panama conducted their initial assaults against close-in targets, this required limited mobility assets to arrive at the objectives. The second factor was that the combat operations conducted by 7th ID after the initial assaults were conducted using air assaults supported by the consolidated aviation task force.⁷³ This aviation task force had three times the lift aviation assets normally available to the light infantry division in its organic structure.⁷⁴ This robust aviation support wasn't always adequate enough to meet all of the 7th ID's mobility requirements and the unit resorted to using commercial or confiscated vehicles to improve their ground mobility. The M113 Armored Personnel Carriers and M551 Sheridan tanks in Panama were invaluable as both troop carriers and weapons platforms and were in constant demand.⁷⁵

Shortly after Operation Just Cause, the U.S Army was involved in Operation Desert Shield/Storm. Faced with constrained airlift and the requirement to get forces on the ground quickly, the Army did not deploy the 7th or the 10th ID. The 82d Airborne Division was deployed on Operation Desert Storm and although it required more time to deploy, it possessed more organic firepower (particularly anti-tank) and greater mobility than a light division. Despite having more fire power and mobility than a light division, the 82d has much less firepower and mobility than a mechanized division. As a result of this, the 82d was relegated to a secondary role in Operation Desert Storm.⁷⁶

Following Desert Storm, the Army deployed 3rd Battalion, 325th (Airborne) from it's base in Italy for Operation Provide Comfort. This operation assisted Kurdish refugees by conducting relief operations and providing security. The 3-325 IN was required to established a security zone while simultaneously conducting peacekeeping and humanitarian assistance operations. The 3-325 IN is a separate airborne battalion and has over 150 wheeled vehicles to provide ground transportation.⁷⁷ This substantial organic tactical mobility was essential to accomplishing their varied mission. Having these vehicles organic to the organization provided several advantages. First, it ensured that 3-325 IN already possessed trained vehicle operators and second, that the unit was proficient in mounted and convoy operations.⁷⁸ This allowed the battalion to focus its predeployment training on skills unique to the area and the operation. Because he believed that future peacekeeping operations would be similar to Operation Provide Comfort, the battalion commander of 3-325 IN emphasized that "U.S.

forces heading for peacekeeping duties must have adequate tactical mobility to operate in the large, often remote sectors that so often characterize such areas."⁷⁹

While airborne units were used in Desert Storm and Provide Comfort, the Army deployed a true light division for Operation Restore Hope/UNOSOM II. The 10th Mountain Division went to Somalia and executed both peacekeeping and humanitarian operations. Conditions similar to those encountered during Operation Provide Comfort were also present in Somalia. The environment presented large and remote areas of operation, long distances between units, with requirements to move equipment and supplies long distances in convoys, and the need to find and monitor possible mounted threats ("technical").⁸⁰ These missions required enhanced tactical mobility. The 10th Mountain Division units were augmented with HMMWVs, and up to two truck platoons per light battalion.⁸¹ While the light forces were able to accomplish all of their missions in Somalia with wheeled vehicles, some problems were identified with self protection. The wheeled vehicles proved to be very vulnerable and provided little protection to occupants during urban operations. This was particularly true during the rescue and recovery operations conducted 3-4 October 1993 in support of the Ranger company and downed Blackhawk helicopter where many casualties were taken by unprotected passengers in HMMWVs and trucks. Wheeled vehicles also proved to be very vulnerable to mines. In three mine incidents involving HMMWVs, 92% of the passengers became casualties, half of them fatal.⁸²

Operation Uphold Democracy found the 10th Mountain Division deployed to Haiti. The mission requirements of this operation stressed the tactical mobility of light forces. In this operation HMMWVs and 5 ton trucks were used to provide mobility. This time, however, the 10th ID infantry battalions had sufficient HMMWVs. This was accomplished by redistributing air defense and artillery HMMWVs to the infantry.⁸³ Because these assets came from within the division, the units were able to train on mounted operations and convoy procedures before deployment, an experience which greatly improved the conduct of operations in Haiti.⁸⁴ The added wheeled vehicles provided the required tactical mobility and allowed the unit to accomplish all of its missions. However, there were problems because the cargo HMMWV's provided no troop protection. In working with the Marines in Haiti, the 10th ID found the Light Armored Vehicle (LAV) to be very versatile providing both protected tactical mobility and intimidating street mobs.⁸⁵

All of the historical examples cited highlight the fact that light infantry divisions have required additional augmentation every time they have conducted operations. Much of this augmentation was required to correct a significant mobility shortfall.

Equipment changes for light units

Most of the improved weaponry and equipment currently being fielded or developed for light infantry is focused at either improving the light infantry's lethality or command and control capability. The new systems being fielded or developed include the following:

JAVELIN: This new anti-tank missile is currently being fielded as a replacement for the Dragon. It is a fire and forget, exceptionally accurate weapon system with a 2,000 meter range that can defeat all known armor. While this new missile is more capable than the dragon, it is not lighter. Javelin weighs in at 49.2 pounds, heavier than the Dragon.⁸⁶

M240B Machine Gun (MG): This machine gun is currently replacing the venerable M60 MG. The M240B provides nine times the reliability with the same lethal, penetrating, and extended range ammunition. However, the new weapon weighs four pounds more than the M60.⁸⁷

Land Warrior: This system consists of an Intrgrated Helmet Assembly Subsystem, Software Subsystem, Computer/Radio Subsystem, Weapon Subsystem, and Protective Clothing and Individual Equipment Subsystem. The system will give each soldier the capability for global positioning, radio communications, computer memory, and improved situational awareness. While this system will provide improved lethality and better situational awareness, it also significantly increases the individual soldiers load. This imposes a greater resupply requirement on a very austere resupply system without providing any additional resources. Currently the backpack, which includes the computer, Global Positioning System, radio, and batteries, adds an additional eight pounds to every infantryman. The new Objective Individual Combat Weapon will weigh approximately 14.1 pounds, 5.4 pounds heavier than the m16A2.⁸⁸ Other systems continue to increase the weight infantrymen will have to carry. This additional weight serves to degrade the mobility of the light infantryman, leaving

him less mobile than the soldiers of an adaptive army. The soldiers of an adaptive army know the precise location of the opponents position and can quickly move to that location before the enemy can properly react.

The current light infantry division has a critical shortage of mobility assets for it's infantry battalions. Combat operations and OOTW conducted since 1985 have shown that there is a great need for mobility and that light units have an inherent shortage of required mobility. Given the Light Division's mobility deficit, can it's soldiers move like the soldiers of an adaptive army like Force XXI?

Chapter 4

ANALYSIS

The Army's answer to the many changes that have occurred since the end of the cold war is Force XXI. Force XXI has been designed to change both the Army's organization, doctrine, and fundamentally how it fights. Central to Force XXI is the concept of expanded battlespace. Battlespace as previously defined is "the conceptual physical volume in which the commander seeks to dominate the enemy. It expands and contracts in relation to the commanders ability to acquire and engage the enemy."⁸⁹ Force XXI units provide the commander the ability to expand his battlespace with fewer and smaller forces by permitting improvements in four key areas. First by providing him with better situational awareness, second by providing more lethal forces with expanded range, third by allowing decisive maneuver through rapid mass and dispersion, and finally by operating at a high tempo.⁹⁰

The first area that facilitates expanded battle space is situational awareness. To operate according to Force XXI doctrine a light division must have near perfect situational awareness. The Army is planning to field the light divisions with the land warrior system. This system will improve friendly situational awareness by providing the commander with the exact location of every soldier on a heads up display. This display is updated by digital signals received from the transmitters worn by each soldier. When coupled with near perfect knowledge of the enemy situation provided by UAV's and ABCS, it will provide precise situational awareness of the entire battle space⁹¹. The fielding of

the Land Warrior will provide the Light Division with the situational awareness required to expand battle space.

The second area that facilitates expanding battle space is possessing more lethal forces with extended range. To address this area, the Army is adding weapon systems that are designed to improve the lethality of light forces. The Javelin anti-tank missile and the M240B are excellent systems that add both range and lethality⁹².

The third area that facilitates expanding battle space is conducting decisive maneuver through rapid mass and dispersion. With its current capabilities, the light division has difficulty executing decisive maneuver by achieving a maneuver overmatch. Maneuver overmatch is achieved by rapidly massing physical forces and then dispersing them.⁹³ Rapidly massing forces depends on speed which the current light divisions do not have. The lack of ground vehicles significantly hinders its ability to move at a pace of more than four kilometers an hour.⁹⁴ Decisive maneuver is enabled by improved situational awareness. Knowing exactly where both friendly and enemy units are permits Force XXI units to quickly mass for an attack against a known target and then disperse for force protection. Having near perfect situational awareness saves time usually lost in developing a situation. The Land Warrior system will provide the light infantry division with the situational awareness needed to execute decisive maneuver, however, the equipment needed to improve this situational awareness will degrade some of the means to control battlespace. This system drastically adds weight to the soldiers load and this degrades both the ability to

conduct rapid movement and the ability to operate at a high tempo. Decisive maneuver at a high tempo requires rapid physical movement. This is normally impaired by adding weight to the soldier. This is particularly true for light infantry units because they lack the transportation assets that could offset this additional weight. While the backpack, which contains the computer, global positioning system, and radio will be required for every mission, the eight pounds it adds to the soldiers load could be offset by using transportation to carry other weapons and equipment not needed for that specific mission. The cumulative effect is that the light divisions will not be able to conduct the rapid physical massing and dispersion that decisive maneuver requires.⁹⁵ The light divisions will be able to see the desired enemy target but will lack the ability to move against it rapidly enough.

The ability to control expanded battlespace through the use of rapidly massing and dispersing maneuver forces is critical in both peacekeeping and conventional operations. In most peacekeeping scenarios the forces assigned are responsible for large geographic areas and have restrictive ROE which normally limits their use of firepower. This constraint on the use of firepower means that many of the economies of force that U.S. forces achieve through the use of crew served weapons and firepower are not available in peacekeeping. The result is that these small peacekeeping forces have to control their battlespace with ground maneuver forces. Because of the large areas involved, control of the assigned battlespace is usually achieved through the use of small unit patrols, or positioning small units throughout the battlespace. Should a

problem develop during a small unit patrol or at a small unit position, rapid physical massing of ground maneuver forces may be needed, particularly if there are firepower constraints in the ROE. This requires that these forces have the mobility to physically move from one part of their battlespace to another in a rapid manner. Peacekeeping forces will also have convoy operations occurring in their battlespace and the ability to conduct these operations depends on ground mobility.⁹⁶ Light infantry units which are primarily foot mobile can not achieve the required mobility needed to control this expanded battlespace without substantial augmentation.

The final area that facilitates the control of battle space is tempo. For the light divisions to operate according to Force XXI doctrine, they must be able to operate at the tempo envisioned by Force XXI doctrine. The emphasis on tempo in Force XXI operations is little different from the concept of operations that Napoleon used in his latter campaigns, where he had lost overall numerical superiority, but could achieve local superiority against the separated armies of his opponents. In these campaigns he would attempt to mass his army and achieve local superiority against the smaller but separated armies of his enemies before they could consolidate and mass against him. In this way he could defeat each of the smaller allied armies by conducting multiple operations in rapid succession with his consolidated army before he was at a numerical disadvantage.⁹⁷ This same concept is used in Force XXI. Force XXI envisions smaller friendly forces achieving local superiority against a larger opponent through improved situational awareness. After the successful initial attacks, Force XXI units will maintain the

pressure on the enemy by quickly attacking the next enemy objective before the enemy can effectively react. Force XXI units have the capability to achieve instantaneous situational awareness and digitally transmit orders. Situational awareness is the building block for Force XXI operations. The precise information provided by UAV's, Land Warrior, and ABCS allows the Force XXI commander to make decisions more accurately and faster than an opponent. By possessing instantaneous situational awareness, time can be saved by quick decisive planning based on completely accurate intelligence. The time saved is used in conducting the next attack against an unbalanced opponent.

The 1993 version of FM 100-5 states that tempo is the "combination of speed and mass that creates pressure on the enemy."⁹⁸ Speed is defined by Webster's as the act or state of moving swiftly.⁹⁹ It is that part of tempo that allows a Force XXI unit to act before the enemy can react. In today's light infantry division eight battalions out of nine can move at only four kilometers an hour for a maximum of twenty to thirty kilometers per day and one battalion per day can be moved by helicopter.¹⁰⁰ Some mobility does exist in the light division. However, this is achieved by using trucks for movement that are normally dedicated to logistics operations. These assets could be used in an emergency to improve the mobility and subsequently the speed of approximately one more infantry battalion, however that would mean that logistics operations, to include resupply operations, are not occurring. Lack of adequate resupply and logistics support would also slow tempo. These facts imply that many of the subsequent attacks needed to maintain tempo will have to be conducted primarily at the pace

of walking infantrymen. This essentially means that the light division will be forced to operate at a speed slightly faster than the enemy while their only available asset is an infantryman that is primarily foot mobile. Relying on foot mobility makes it difficult for the light division to generate the speed overmatch needed to keep pressure on the enemy, even if troops that were uncommitted in the initial attacks are used. Light divisions will know where subsequent attacks should be conducted because of the situational awareness provided by Land warrior and ABCS, but will lack the ability to attack them at the pace needed by Force XXI.

The other component of tempo is mass. FM 101-5-1 defines mass as the concentration of combat power.¹⁰¹ Combat power is composed of the elements of maneuver, firepower, protection, and leadership.¹⁰² The purpose of maneuver is to move combat forces to gain a positional advantage over the enemy.¹⁰³ Because the majority of the light division can only move at three to four kilometers an hour it may not have the speed required to gain a position of advantage before the enemy. While situationally dependent, in many cases it will be difficult for current light forces to move more rapidly than the enemy unless significantly augmented by vehicles. This lack of speed makes tempo difficult to achieve.

Firepower provides the destructive force needed to defeat the enemy's ability and will to fight.¹⁰⁴ In a light division, because of the lack of heavy supporting weapon systems, much of the fire power available is organic to the infantry battalions. Additionally, most of the planned equipment improvements are designed to improve the infantry battalions firepower while little is being done

to improve the firepower of other units in the division. Artillery, CAS, and army aviation all make significant firepower contributions. However, the firepower inherent in the infantry battalions is still required to conduct successful light division operations. If the mission requires the massing of infantry battalions, this massing is dependent on ground mobility to mass. In light divisions only one battalion can be moved by helicopter unless the division receives augmentation. The pace at which these forces can mass is four kilometers an hour, not a speed that is likely to give the light divisions a tempo advantage over the enemy.

Protection is the conservation of fighting potential so that commanders can apply it at the decisive place and time.¹⁰⁵ An essential element of protection is dispersion. Light infantry units are very good at dispersing. However, for Force XXI operations, they must also rapidly mass to conduct the subsequent attacks needed in order to maintain tempo, and then disperse for protection. The ability to rapidly mass and disperse is based on speed, a commodity that light units do not possess in quantities greater than four kilometers an hour.

Training prepares soldiers, leaders, and units to fight and win a war. FM 25-101 directs all units to "train in peacetime as they will fight in war."¹⁰⁶ The concept of augmenting light divisions with the many CS and CSS units they lack for difficult missions is contradictory of this directive. Augmentation is not a chance occurrence because almost every operation that light divisions have participated in since their inception has required augmentation. A light division can not "train as it will fight" when it doesn't control or train with the units with which it will have to fight until it deploys on operations.

The new equipment being added to light divisions will both help and hinder their ability to operate at an increased tempo. ABCS and the Land Warrior system will provide Force XXI units with increased situational awareness and the ability to conduct operations at a high tempo. By knowing with relative certainty where both friendly and enemy units are located, subsequent plans and orders can be developed or adjusted rapidly. The knowledge of enemy locations and enhanced navigation capabilities also allow subsequent movements to be more deliberate and rapid. These systems enable new orders or FRAGOS to be transmitted more rapidly through instantaneous digital dissemination. However, the increased weight and bulk added to the infantryman will slow the speed of movement and reduce the total distance that the infantryman can move. Despite the potential improvements in operational and tactical tempo made possible by improving the ability to plan and control operations through the addition of command and control (C2) equipment, this equipment can not overcome the laws of physics.

CHAPTER 5

CONCLUSION

The world is changing at rapid pace in a myriad of areas from security relationships and economics, to technology. If the United States is to maintain its role of world leadership and meet it's international security commitments, the Army must evolve to meet these changes. The Army has chosen Force XXI as the means of meeting these changes and challenges. The light divisions, as part of a greatly reduced force structure, will also have to operate according to Force XXI operating principles.

This paper has addressed the question: Can the Light Infantry Division conduct offensive operations to the tempo required by Force XXI doctrine? The answer is clearly no, not with it's current structure.

The Light Division's lack of mobility causes it to fall short in several areas of Force XXI doctrine related to tempo. The first of these is the control of expanded battle space. Force XXI units will be able to "see" a greatly expanded battle space because of an increased number of sensors that will be digitally linked to commanders. While sensors and digital links provide the vision of expanded battle space, control over this battle space is achieved through the use of more lethal and longer ranged weapons, decisive maneuver conducted by rapidly massing and dispersing ground maneuver forces, and by operating at an increased tempo.

The new equipment being provided to the light infantry is delivering the required view of expanded battle space and providing more lethal and longer ranged weapons to control the battle space. However, this same equipment hinders the light infantry's ability to conduct rapid maneuver and operate at an increased tempo due to the additional weight it adds to the individual soldiers load. The light infantry division already has difficulty moving at a pace faster than four kilometers an hour and the impact of the weight of this new equipment needs to be studied to assess its full impact. It's possible that while it's required to be faster the light units may actually be slower because of this added weight. It will be difficult to control battle space through rapid maneuver if you have degraded your speed with weight.

Slower speed has an even greater impact on the light divisions ability to use tempo to control expanded battle space. Speed is an important component of tempo because it's what allows a Force XXI unit to actually move faster than the enemy. Being able to see exactly where the enemy and friendly forces are speeds the decision to attack a subsequent objective. However, it will not result in any concrete gain unless a maneuver force can physically move against that enemy unit while the enemy is still suffering from the effects of it's initial defeat and before it can consolidate and strengthen the new position it has occupied. Force XXI doctrine requires that units operate at a tempo that quickly exploits their initial gains. Tempo is in many ways analogous to a foot race with the enemy for subsequent objectives. The light division shouldn't be set up to lose this because of a lack of mobility assets.

The first step in allowing the light division to operate at the tempo required under Force XXI doctrine is simply adding ground vehicles to the light division. Tempo could also be improved by adding more helicopters but that would also increase costs and require a greater amount of support vehicles, supplies, and equipment. Tactical mobility, and tempo, can be improved by adding additional ground vehicles. A small but important improvement in tempo can be made simply by adding four HMMWV's with trailers to each light infantry rifle company. This would provide one HMMWV for each rifle platoon and one for the supply sergeant. The platoon's HMMWV could be used to carry the unneeded rucksacks, equipment, and weapons for each platoon and reduce the soldiers load to counter the weight added by Land Warrior. The supply sergeants HMMWV could be used to carry the additional batteries required by Land Warrior as well as heavier ammunition like Javelin rounds.

Adding more ground vehicles to move complete battalion size units would be the next step in improving the light divisions tactical mobility. Adding two Transportation Motor Transport Companies (light) would give the Division commander the ability to move one brigade entirely mounted. This not only provides him the ability to exploit initial successes, it would also provide the mobility needed by brigade sized units when deployed on OOTW missions.

While all of these additions will reduce the strategic mobility that light divisions have on paper, in reality it would differ little from the strategic mobility that light divisions have experienced in actual operations after receiving needed augmentation. Adding these vehicles would result in strategic mobility similar to

that which light divisions experienced in actual operations. Further, this allows the light division the training benefits accrued from habitual relationships, and allows them to operate at the tempo required by Force XXI. Adding the vehicles needed to improve the mobility of light divisions would allow them to become true partners in Force XXI.

ENDNOTES

¹ *National Military Strategy*. (Washington, DC: 1998), 3-6

2 Ibid., 1,2-6

3 Ibid., 3-6

4 Ibid., 3-6

5 Ibid., 3-6

6 TRADOC Pamphlet 525-5, *Force XXI Operations* (Fort Monroe, VA: US Training and Doctrine Command, 1994), 2-17

7 *National Military Strategy*, 3-6

8 TRADOC Pamphlet 525-5, 3-7

10 Field Manual 100-5, *Operations (Revised Final Draft)* (Washington, D.C.: Department of the Army, 1997), 1-4

11 See TRADOC Pamphlet 525-5, *Force XXI Operations*, 2-7; and Field Manual 100-5, *Operations*, 1-4

12 *Land Combat in the 21st Century* (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1994), 10

12 Ibid., 10

14 Field Manual 101-5-1, *Operational Terms and Symbols* (Washington D.C.: Department of the Army, 1997), 1-18

15 *Land Combat in the 21st Century*, 10

16 Ibid., 11

17 Ibid., 12

18 Ibid., 12

19 Ibid., 13

20 Ibid., 13

21 Ibid., 13

22 Ibid., 14

23 Ibid., 14

24 Ibid., 15

- 25 Ibid., 15
- 26 Ibid., 15
- 27 Ibid., 16
- 28 Ibid., 16
- 29 Ibid., 16
- 30 Ibid., 17
- 31 TRADOC PAM 525-5, 3-17
- 32 Field Manual 101-5-1, 1-17
- 33 TRADOC PAM 525-5, 3-17
- 34 Ibid., 4-17
- 35 Ibid., 5-17
- 36 Ibid., 6-17
- 37 Ibid., 7-17
- 38 Ibid., 9-17
- 39 Field Manual 100-5, 9
- 40 Ibid., 7-3
- 41 Ibid., 7-3
- 42 Field Manual 100-5, *Operations (Revised Final Draft)* (Washington, D.C: Department of the Army, 1998), 6-27
- 43 Ibid., 6-27
- 44 Ibid., 7-6
- 45 TRADOC PAM 525-5, 14-17
- 46 William B. Caldwell, *Not Light Enough to get there, Not Heavy Enough to Win: The case of U.S. Light Infantry* (Fort Leavenworth, K.S: US Army Command and General Staff College, 1987) 28-35
- 47 John L. Romjue, *The Army of Excellence: The Development of the 1980's Army* (Fort Monroe, VA: US Army Training and Doctrine Command, 1993), 36
- 48 FM 101-5-1, 1-145
- 48 John L. Romjue, 42-43

49 GEN John A. Wickham, White Paper, *Light Infantry Divisions* (Washington D.C: Department of the Army, 1984) 1

50 Ibid., 1

51 Ibid., 1

52 Ibid., 2

53 Ibid., 1

54 Ibid., 1-2

55 William K. Sutey, *Light Infantry, Augmentation, and the M113A3 Armored Personnel Carrier: A Step in the Direction of Versatility* (Fort Leavenworth K.S: US Army Command and General Staff College, 1993), 22

56 John L. Romjue, 15

57 Student Text 100-5, (Fort Leavenworth, K.S: US Army Command and General Staff College, 1985), 5-2, 8-5

58 Field Manual 71-100-2, *Infantry Division Operations* (Washington D.C: Department of the Army, 1993), 1-1

59 William R. Puttmann, *The Infantry Division (Light) Firepower and Mobility in the Desert: How Effective?* (Fort Leavenworth, K.S: US Army Command and General Staff College, 1988), 53

60 Ibid., 53

61 William K. Sutey, 24

62 Ibid., 24

63 Field Manual 21-18, *Foot Marches* (Washington D.C: Department of the Army, 1989), 3-9

64 Ibid., 3-9

65 William B. Caldwell, 4

66 Ibid., 6

67 Ibid., 6-7

68 Ibid., 7

69 Robert R. Palmer, *Reorganization of Ground Troops for Combat, Study No. 8* (Washington D.C: Headquarters Army Ground Forces, Historical Section, 1946), 46

70 Ibid., 47

71 William B. Caldwell, 51

- 72 John M. Spiszer, *The Light Infantry Company and Tactical Mobility: A Step in Which Direction?* (Fort Leavenworth, K.S: US Army Command and General Staff College, 1998), 11
- 73 Ibid., 11
- 74 Thomas Donnelly, Margaret Roth, and Caleb Baker, *Operation Just Cause: The Storming of Panama* (New York: Lexington Books, 1991), 81
- 74 John M. Spiszer, 11
- 76 Ibid., 12
- 77 Ibid., 14
- 78 Ibid., 15
- 79 John P. Abizaid, "Lessons for Peacekeepers." *Military Review* 73, no.3 (1993): 19
- 80 John M. Spiszer, 16
- 81 Stephen Michael, "CSS Operations in Somalia." 84, no.4 (1994): 30
- 82 William C. Schenck, "Vehicle Mine Survivability." *Center for Army Lessons Learned From the Front* (March-April 1995): 7
- 83 John M. Spiszer, 19
- 84 Ibid., 19
- 85 Ibid., 20
- 86 Ibid., 29
- 87 Ibid., 30
- 88 Ibid., 31
- 89 FM 101-5-1, 1-8
- 90 See TRADOC PAM 525-5, *Force XXI Operations; Land Combat in the 21st Century*; and FM 100-5 *Operations (Revised Final Draft*,
- 91 Ibid., 29-31
- 92 John M. Spiszer, 29-31
- 93 TRADOC PAM 525-5, 07-17
- 94 John M. Speizer, 29-31
- 95 TRADOC PAM 525-5, 6-17
- 96 John M. Spiszer, 14-15

97 Dr. Robert M. Epstein, Lecture on Napoleonic Warfare to the SAMS class at Fort Leavenworth K.S. on 4 December 1998

98 FM 100-5,p7-3

99 G. & C. Merriam Company, *Webster's New Collegiate Dictionary* (Springfield, MA: G.& C. Merriam Company, 1981) 1109

100 William R. Puttmann, 53-55

101 FM 101-5-1, 1-98

102 FM 100-5, 2-10 and 2-11

103 Ibid., 2-10

104 Ibid., 2-10

104 Ibid., 2-10

105 Field Manual 25-101, *Battle Focused Training* (Washington D.C: Department of the Army, 1990) 1-4

106 Ibid., 1-4

BIBLIOGRAPHY

Books

- Bellamy, Chris. *The Future of Land Warfare*. New York: St. Martins's Press, 1987.
- Clausewitz, Carl. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton, NJ, Princeton University Press, 1976.
- Donnelly, Thomas, Margaret Roth, Caleb Baker. *OPERATION JUST CAUSE: The Storming of Panama*. New York: Lexington Books, 1991
- English, John A. *On Infantry*. New York: Praeger Special Studies, 1981
- G. & C. Merriam Company, *Webster's New Collegiate Dictionary*. Springfield: C. H. % C. Merriam Company, 1981
- Hart, Liddel. *The Future of Infantry*. Harrisburg, Pennsylvania: Military Service Publishing Co., 1936
- Marshall, S.L.A. *The Soldiers Load and the Mobility of a Nation*. Quantico, VA: Marine Corps Association, 1980
- Mazar, Michael J. *LIGHT FORCES & the FUTURE of U.S. Military Strategy*. New York: Brassey's (US), INC., 1990
- Romjue, John L. *THE ARMY OF EXCELLENCE: The Development of The 1980's Army*. Fort Monroe, Virginia: United States Training and Doctrine Command, 1993
- Sullivan, Gordon. *America's Army: Into the Twenty-First Century*. Hollis, N.H.: Puritan Press, Inc, 1993.

Woodard, Bob. *The Commanders*. New York: Simon & Schuster Inc., 1991

Periodicals

Abizaid, John P. "Lessons for Peacekeepers." *Military Review* 73, no. 3 (1993):

11-19.

Ernst, Carl F. "Javelin- The Knockout Punch." *Infantry* 86, no.5 (1996): 1-2

Michael, Stephen. "CSS Operations in Somalia." *Infantry* 84, no. 4 (1994): 29-

33

Newman, Richard J. "Warfare 2020." *U.S. News and World Report* (August 5,

1996): 34-42

Schneck, William C. "Vehicle Mine survivability." *Center Army Lessons Learned*

From the Front (March-April 1995)

Schneider, James J. "Theory of the Empty Battlefield." *Journal of the Royal*

United Services Institute for Defense Studies (1987): 37-44

Wass de Czege, Huba. "Mobile Strike Force: A 2010 Potential Force" . *Military*

Review (July-August 1996): 70-84

Government Documents, Manuals, and Publications .

Field Manual 101-5-1: *Operational Terms and Graphics*. Washington:

Department of the Army, 1997

Field Manual 100-5: *Operations*. Washington. Department of the Army, 1993

Field Manual 100-5: *Operations (Revised Final Draft)*. Washington:

Department of the Army, 1998

Field Manual 71-200-2: *Infantry Division Operations*. Washington: Department

of the Army, 1993

- Field Manual 71-100: *Division Operations*. Washington: Department of the Army, 1996
- Field Manual 25-101: *Battle Focused Training*. Washington: Department of the Army, 1990
- Field Manual 21-18: *Foot Marches*. Washington: Department of the Army, 1989
- House, Jonathan M. *Towards Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine, and Organization*. Fort Leavenworth, KS: US Army Command and General Staff College, 1984
- Lupfer, Timothy T. *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War*. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1981
- Office of the Chairman of the Joint Staff. *National Military Strategy of the United States of America*. Washington D.C. September 1997.
- Palmer, DR. Robert R. *Reorganization of Ground Troops for Combat, Study No. 8*. Washinton, D.C.: Headquarters Army Ground Forces, Historical Section, 1946
- Student Text 100-3. *Battle Book*. Fort Leavenworth, KS: US Army Command and General Staff College, 1997
- The White House. *A National Security Strategy For A New Century*. Washington D.C. May 1997
- US Army. ST 71-2: *Tactics, Techniques, and Procedures for the Digitized Brigade..* US Army Armor Center, Fort Knox, KY, February 1996.

US Army. *TRADOC Pamphlet 525-5: Force XXI Operations*. Washington:

Department of the Army, August 1994

US Army. *Land Combat in the 21st century*. Fort Monroe, VA,

Department of the Army, 1994

Wickham, John A. *Light Infantry Divisions: White Paper*. Washington, D.C.:

Department of the Army, 1984

Lecture

Epstein, Robert M. Lecture on *Napoleonic Warfare* presented to the School of

Advanced Military Studies at Fort Leavenworth KS, 4 December 1998

Monographs

Caldwell, William B. *Not light enough to get there, not heavy enough to win: The*

case of US Light Infantry. Fort Leavenworth, KS: U.S. Army Command

and General Staff College, 1987

Cranford, Teddy C. *Coping with Change: Operational Art and Force XXI*. Fort

Leavenworth, KS: US Army Command and General Staff College, 1996

Everson, Robert E. *Light Infantry Vulnerabilities that Represent Strategic*

Vulnerability in Operations Other Than War. Fort Leavenworth, KS: US

Army Command and General Staff College, 1995

Ghee, Su Poon. *Equipping the Light Infantry Division in the 90's*. Fort

Leavenworth, K.S: U.S. Army Command and General Staff College, 1986

Grigsby, Wayne W. *The Current Interwar Years: Is the Army Moving in the*

Correct Direction? Fort Leavenworth, KS: US Army Command and

General Staff College, 1996

Hagen, Marshall A. *Employment of Light Infantry in Contingency Operations:*

What do we do without Armor. Fort Leavenworth, KS: US Army

Command and General Staff College, 1998

Jones, Brian D. *What are the risks of building a high tech, narrowly focused*

Army? Fort Leavenworth, KS., U.S. Army Command and General Staff

College, 1996

O'Brian, John J. *Size 12 Leather Personnel Carriers: Tactical Mobility and the*

Light Infantry. Fort Leavenworth, KS: US Army Command and General

Staff College, 1991

Peddy, Charles A. *The Light Infantry Division: No Tool for the Tactical*

Commander. Fort Leavenworth, KS: US Army Command and General

Staff College, 1989

Puttmann, William R. *The Infantry Division (Light) Firepower and Mobility in the*

Desert: How Effective? Fort Leavenworth, KS: US Army Command and

General Staff College, 1988

Spiszer, John M. *The Light Infantry Company and Tactical Mobility: A Step in*

Which Direction? Fort Leavenworth, KS., U.S. Army Command and

General Staff College, 1998

Sutey, William K. *Light Infantry, Augmentation, and the M113A3 Armored*

Personnel Carrier: A Step in the Direction of Versatility. Fort Leavenworth

KS: US Army Command and General Staff College, 1993

Tomlin, Harry A. *Organizational Design of Light Forces: A Structure for all*

Seasons. Fort Leavenworth KS: US Army Command and General Staff
College, 1989

Webb, Thomas D. *Empty Battlefield XXI: Revolutionary Tactics for the Force XXI
Light Infantry Unit*. Fort Leavenworth, KS., U.S. Army Command and
General Staff College, 1997